

# BATHMOPTERUS, A NEW FOSSIL GASTEROPOD GENUS FROM THE SILURIAN OF ALASKA

By EDWIN KIRK

*Of the United States Geological Survey*

In a recent paper published in these Proceedings<sup>1</sup> I briefly discussed an upper Silurian horizon that is widely distributed in Alaska. In the present paper is described a new gasteropod genus from this horizon.

## BATHMOPTERUS, new genus

This genus superficially resembles *Euomphalopterus*. This resemblance is due to the general form of the shell and the possession of a broad marginal flange. Here the resemblance ceases, however. *Bathmopterus* has a well defined though nontypical slit band and is apparently referable to the Pleurotomaridae, or possibly the Euomphalidae, rather than the Rhaphistomidae.

The genus is Euomphaloid in general appearance. The spire is low and broadly spreading. Six closely appressed whorls are present in the figured specimen. The umbilicus is very large and open. The upper surface of the whorl is convex. Laterally the whorls are flattened, giving way again to a gently convex area on the under side of the whorl which marks the zone of contact with the succeeding whorl. The inner portion of the whorl is convex and drops off rather abruptly from the contact zone.

The growth lines on the upper surface of the whorls are directed backward to the slit band. Below the band the growth lines are sharply flexed backward in the vicinity of the band. The lines are then carried outward on the broad flange or carina, where from a backward attitude they curve gradually until in the marginal area of the flange they are at right angles, or even directed slightly forward. The growth lines on the under surface of the flange parallel those of the upper surface. The slit band is no more than a flattened area in which the growth lines abruptly change their direction. So far as seen, the band is not sharply delimited by marginal ridges, nor

<sup>1</sup> Proceedings United States National Museum No. 2692, vol. 71, art. 20, pp. 1-9, 1927.

is there a marked change in the growth lines as they cross it. The band is situated above the middle of the whorl. Its lower edge marks the periphery of the whorl, and the band itself lies at an angle on the sloping upper surface of the whorl. The band is flat to slightly convex. As shown by the growth lines, the slit band on the free margin lay at the apex of a deep, sharply angular V-shaped notch. The upper surface of the flange or carina has its inception somewhat below the middle of the whorl and at the base of the flattened lateral zone below the band. Its lower surface seems to be along the line of contact between adjacent whorls. The flange is thick in its inner portion, becoming thinner toward the margin. The flange lies in contact with the upper surface of the infrajacent whorl and in part seems to have coalesced with it. It is only by careful chipping away of this portion of the flange that the upper surface of the whorl can be seen. The flange does not drop down over the slit band but flares abruptly outward at its upper margin.

*Bathmopterus* may readily be distinguished from *Euomphalopterus* by its wide umbilicus, its deep apertural notch and slit band, and the very different character of its marginal flange. There seems to be no other genus with which *Bathmopterus* may readily be confused, so long as the shell is preserved.

In the Guelph of Ontario are gastropods commonly referred to *Euomphalopterus*. Such material as I have seen is in a very poor state of preservation and can not well be determined with certainty. I think, however, that the Guelph material is not referable to *Euomphalopterus*, and if not referable to *Bathmopterus*, as seems equally probable, represents a new genus.

*Type*.—*Bathmopterus liratus*, new species, is the type and only known species of the genus. So far as known the genus is restricted to the upper Silurian of Alaska.

BATHMOPTERUS LIRATUS, new species

Plate 1, Figs. 1-5

This species is founded on one excellent specimen and several fragmentary specimens. All the essential structural characters are well shown by the material available for study.

The spire is low, the sides diverging at an angle of about  $105^{\circ}$ . Measurements give a height of 3 centimeters and a maximum breadth, exclusive of the flange, of 5.5 centimeters. The whorls are closely appressed. In the apical portion of the shell the whorls overlap the preceding whorls to about one-half their height. The fifth whorl is overlapped by the sixth to not more than one-sixth its height. In the intermediate zone there is a progressive change from

one extreme to the other. The largest specimen seen has six whorls, and it is probable that this is near the maximum.

The contours of the whorls are not easily seen owing to the superimposed cover of the marginal flange. The description as given is based in part on cross-sections and in part on whorls from which the flange has been removed. The whorls range from subcircular to subovate in cross-section, the whorl being at times somewhat flattened in the plane of the proximal portion of the marginal flange. The whorls are closely appressed and overlap but slightly. The inner upper margin of the whorl is somewhat flattened along the contact zone with the superjacent whorl. The upper surface of the whorl as far as the band is gently convex. From the lower margin of the band the side of the whorl is nearly perpendicular as far as the flange. Here there is at times a slight evagination of the whorl. Below the flange there is a flattened area marking the contact zone with the next succeeding whorl. The remainder of the whorl is as a rule evenly rounded.

The band, as noted under the description of the genus, is non-typical, in that it does not have bounding carinae and the growth lines in crossing it maintain their relative size and spacing. The band is, however, quite as plainly marked as in some of the *Pleurotomaridae*. The band is wide and lies obliquely on the upper sloping surface of the whorl. The lower margin of the band marks the periphery of the whorl. So far as the specimens available for study show there is no slit.

The growth lines on the upper surface of the whorl are sharply flexed backward to the band, which they cross at right angles. Below the band the growth lines are again sharply flexed backward. On the flange the lines sweep outward in a long smooth curve, in the marginal portion of the flange apparently having a forward direction. On the lower surface of the flange the growth lines parallel the lines on the upper surface. On the whorl itself the lines hold the same direction, but at a less acute angle. As shown by the growth lines a deep V-shaped marginal notch was present, at the apex of which lay the band.

The flange has its inception at about one-third the height of the whorl. At its base the flange is thick, tapering gradually to the outer margin. When followed by another whorl the flange lies directly upon the infrajacent whorl and appears to have coalesced with it. The flange lies in close contact with the whorl below, as far as the upper margin of the band, from which point it is free. In the younger whorls the flange has no free extension, though this may be due to breaking off of the fragile margin during the life of the animal. In the later whorls it extends outward for a considerable distance.

The free portion of the flange near the whorl slopes abruptly downward, then the flange flattens and gradually assumes an upward curve. In extreme cases the flange may turn backward and become partially inrolled.

All the known specimens referable to this species come from the massive upper Silurian limestones of Willoughby Island, Glacier Bay, Southeastern Alaska. Collector, Edwin Kirk.

*Cotypes*.—The cotypes of *Bathmopterus liratus* are in the collection of the United States National Museum, No. 72671.

#### EXPLANATION OF PLATE

Figs. 1-5. *Bathmopterus liratus*, new genus and species.

1. Vertical median section through an adult individual.

2-5. Various views of an adult individual. Upper Silurian limestone, Willoughby Island, Glacier Bay, Southeastern Alaska.

